## SCOPE & DEFINITIONS

This Chapter contains criteria to control and abate threats to human health and the environment from the handling, use, storage, and disposal of polychlorinated biphenyls (PCBs). These criteria include specific requirements for most uses of PCBs, including (but not limited to) transformers, capacitors, heat transfer systems, hydraulic systems, electromagnets, switches and voltage regulators, circuit breakers, reclosers, and cables.

**Capacitor** – A device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric.

**Chemical Waste Landfill** – A landfill at which a high level of protection against risk of injury to human health or the environment from migration of deposited PCBs to land, water, or the atmosphere is provided by incorporating special methods for locating, engineering, and operating the landfill.

**In or Near Commercial Buildings** – Within the interior of, on the roof of, attached to the exterior wall of, in the parking area serving, or within 30 meters of a non-industrial, non-substation building.

**Incinerator** – An engineered device using controlled flame combustion to thermally degrade PCBs and PCB items. Examples include rotary kilns, liquid injection incinerators, cement kilns, and high temperature boilers.

**Leak or leaking** – Any instance in which a PCB article, PCB container, or PCB equipment has any PCBs on any portion of its external surface.

**Mark** – The descriptive name, instructions, cautions, or other information applied to PCBs and PCB items, or other objects subject to this Guide.

**Marked** – PCB items and PCB storage areas and transport vehicles marked by applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets these criteria.

**Non-PCB Transformers** – Any transformer that contains less than 50 ppm PCB.

**Polychlorinated Biphenyls (PCBs) –** The term includes:

- PCBs
- Polychlorinated triphenyls (PCTs)
- Monomethyltetrachlorodiphenyl methane
- Monomethyldichlorodiphenyl methane
- Monomethyldibromodiphenyl methane

**PCB Article** – Any manufactured article, other than a PCB container, that contains PCBs and whose surface(s) has been in direct contact with PCB. This includes capacitors, transformers, electric motors, pumps, and pipes.

**PCB Article Container** – Any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB articles or PCB equipment, and whose surface(s) has not been in direct contact with PCBs.

**PCB Container** – Any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB articles, and whose surface(s) has been in direct contact with PCBs.

**PCB-Contaminated Electrical Equipment** – Any electrical equipment including (but not limited to) transformers, capacitors, circuit breakers, reclosers, voltage regulators, switches, electromagnets, and cable that contain 50 ppm or greater PCB, but less than 500 ppm PCB.

**PCB Equipment** – Any manufactured item, other than a PCB container or a PCB article container, which contains a PCB article or other PCB equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures.

**PCB Item** – Any PCB article, PCB article container, PCB container, or PCB equipment that deliberately or unintentionally contains (or that previously contained) or has as a part of it any PCB, or PCBs at a concentration of 50 ppm or greater and that has not been decontaminated. All articles, containers, or equipment that previously contained PCB or may have contained PCB are classified as PCB items unless there are records (e.g., analytical testing or manufacturer's warrantee) to the contrary.

**PCB Large High Voltage Capacitor** – A capacitor that contains 1.36 kg (3 lbs) or more of dielectric fluid and which operates at 2,000 volts (alternating current (a.c.) or direct current (d.c.)) or above.

**PCB Large Low Voltage Capacitor** – A capacitor that contains 1.36 kg (3 lbs) or more of dielectric fluid and which operates below 2,000 volts (a.c. or d.c.).

**PCB Transformer** – Any transformer that contains 500 ppm PCB or greater.

**Restricted Access Area** – Areas where access by unauthorized personnel is controlled by fences, other man-made structures, or naturally-occurring barriers such as mountains, cliffs, or rough terrain.

**Substantial Contact Area** – An area that is subject to public access on a routine basis or which could result in substantial dermal contact by employees.

**Used PCB** - Any PCB considered as a waste, according to Appendix B.2.

## CRITERIA

### C14.1 GENERAL

C14.1.1 The installation spill contingency plan will address PCB items, including temporary storage items. Chapter 18, Spill Prevention and Response Planning and Spill Cleanup, provides criteria on how to prepare these plans.

C14.1.2 Notification of PCB spills will follow the procedures in C18.4. Spills of PCB liquids at concentrations of 50 ppm or greater will be responded to immediately upon discovery and cleaned up in accordance with the following:

- Surfaces that are located in substantial contact areas will be cleaned to 10 micrograms per 100 square centimeters (µg /100 $cm^2$).
- Surfaces in all other contact areas will be cleaned to 100 µg/100 $cm^2$.
- Contaminated soil located in zones including commercial/industrial activities will be removed until the soil tests no higher than 5 ppm PCBs and will be backfilled with clean soil containing less than 1 ppm PCBs. All areas in which PCB spills have been cleaned up shall be annotated on installation real property records the level of PCBs remaining in the soil, including the extent, date, and type of sampling and a reference to any reports documenting the site conditions.
- Contaminated soil located in zones used for residential or public/leisure activities will be removed to a minimum depth of 10 inches or until the soil tests no higher than 0.001 ppm PCBs, whichever is deeper, and will be backfilled with clean soil containing less than 0.001 ppm PCBs.

C14.1.3 All PCB items (including capacitors) containing more than 5 cubic decimeters ($dm^3$) (5 liters) of PCBs by volume, as well as items containing fluids with a PCB concentration of 0.005% to 0.05% (50 to 500 ppm), must be prominently labeled in English and Italian. This marking criteria also applies to rooms, vaults, and storage areas containing PCB transformers or storing PCBs or PCB items for disposal. The doors to rooms where PCB items are located must also be labeled.

The label should be accompanied by operating instructions specific to that item. If the item contains fluids with PCB concentrations of 0.005% to 0.05% (50 to 500 ppm), the label should state: “PCB contamination lower than 0.05% (500 ppm)”. Labeling requirements are summarized in Table 14.1.

The following PCB items must be marked at the time of items’ removal from use if not already marked: PCB large low voltage capacitors and equipment containing a PCB transformer or PCB large high voltage capacitor.

Decontaminated transformers should be labeled according to Table 14.2.

C14.1.4 Each installation having PCB items will maintain a written inventory that includes a current list by type of all PCB items in use and all PCB items placed into storage for disposal or disposed of for that year. Inventory records should be maintained for a period of time at least 3 years after the last item on the list is disposed of.

The following administrative "declarations and notifications" must be prepared and submitted to the Italian Base Commander (see Chapter 1 for the procedure):

- Installations having PCB items with PCB concentrations greater than 50 ppm by weight must provide notification of the item to the Italian Base Commander, who may submit the information to the Competent Regional Authority for the Italian National inventory. The information required in the declaration is listed in the Administrative Items section at the end of this Chapter. The notification must be updated annually.
- Installations having items containing greater than 5 $dm^3$ (5 liters) by volume of PCBs must declare the items to the Italian Base Commander, who may submit the declaration to the Competent Regional Authority. The information required in the declaration is listed in the Administrative Items section at the end of this Chapter. The initial declaration is due on 31 Dec 2000. An update is required every 2 years or within 10 days from any variation in the number of PCB items or in the PCB concentrations. (Installations having items containing fluids with a PCB concentration of 0.005% to 0.05% (50 to 500 ppm) must just report the name, address, location, and description of the items.)

C14.1.5 PCB items will be disposed in accordance with criterion C14.5.

- Temporary storage areas should be designed and operated according to general guidance and PCB concentration limits set in Chapter 6 - Waste Management.
- Storage areas must be authorized, as described in Chapter 6.

C14.1.6 All periodic inspections as required in this Chapter will be documented at the installation. Records of inspections and maintenance history will be maintained for 3 years after disposal of the transformer or for 5 years from the date of the last inspection, whichever is longer.

## C14.2 PCB TRANSFORMERS (500 PPM PCB OR GREATER)

C14.2.1 PCB transformers that are in use will not be used in any application that poses a risk of contamination to food or feed.

C14.2.2 All PCB transformers (including those in storage for disposal) will be registered with the servicing fire department/emergency service provider.

C14.2.3 PCB transformers in use in or near commercial buildings or located in sidewalk vaults will be equipped with electrical protection to minimize transformer failure that would result in the release of PCBs.

C14.2.4 PCB transformers removed from use must be decontaminated or disposed of. They will not be used at another location.

C14.2.5 PCB transformers will be managed as follows:

C14.2.5.1 PCB transformers still in use will be decontaminated or disposed of by the following schedule, or at the end of their effective lifetime (i.e., as long as they do not require servicing; see C14.2.5.2), whichever is sooner:

- If the transformer contains less than 5 $dm^3$ (5 liters) of PCBs by volume, it must be decontaminated or disposed of by 31 December 2005.
- If the transformer contains 5 dm3 (5 liters) or greater of PCBs by volume, it must be reported to the Regional Office of Waste Register, and must be disposed of by 31 December 2010.

C14.2.5.2 Servicing of PCB transformers is prohibited.

C14.2.5.3 PCBs removed from transformers cannot be reused. They will be disposed of in accordance with C14.5.

C14.2.5.4 The use (or reuse) of fluids containing PCBs at concentrations of 50 ppm or greater is prohibited. PCB fluids within PCB transformers must be eliminated by the schedule in C14.2.5.1. Any PCB fluids that are removed from PCB transformers must be disposed of in accordance with C14.5.

C14.2.6 All in-service PCB transformers greater than 500 ppm will be inspected every 3 months. All other PCB transformers will be inspected at least every 12 months.

C14.2.7 If any PCB transformer is involved in a fire such that it was subjected to heat and/or pressure sufficient to result in violent or nonviolent rupture, the installation will take measures to control water runoff, such as blocking floor drains. Runoff water will be tested and treated if required in accordance with Chapter 18.

C14.2.8 Leaking PCB transformers must be replaced within 48 hours or as soon as possible. Leaking PCB transformers will be inspected daily until replaced. Leaking PCB fluid will be containerized.

C14.2.9 All transformers will be considered and treated as PCB transformers unless information to the contrary exists.

## C14.3 OTHER PCB ITEMS

C14.3.1 All operative items containing PCBs must be decontaminated or disposed of by 31 December 2010, or at the end of their effective lifetime (i.e., as long as they do not require servicing), whichever is sooner. Decontamination activities conducted in Italy must be conducted by authorized companies currently enrolled in the National Waste Managing Company Register. Decontaminated items must be serviced with dielectric fluid that does not contain PCBs, and must be labeled as such.

C14.3.2 The use (or reuse) of fluids containing PCBs at concentrations of 50 ppm or greater is prohibited. PCB fluids within PCB items must be eliminated by the schedule in C14.3.1. Any PCB fluids that are removed from PCB items must be disposed of in accordance with C14.5.

C14.3.3 Capacitors containing PCBs at any concentration must be managed as follows:

- Large capacitors (1 kg or greater total weight) that have been in service since 1988 may be authorized for continued use as long as they remain in good condition (based on routine inspections). These capacitors cannot be reused unless they are decontaminated and PCB-containing dielectric fluid is replaced with dielectric fluid that does not contain PCBs.
- PCB large high-voltage and PCB large low-voltage capacitors (1 kg or greater total weight) that have been in service since 1988 may be authorized for continued use as long as they remain in good condition (based on routine inspections) if the capacitor is used within a restricted-access electrical substation or in a contained and restricted-access indoor installation. The indoor installation will not have public access and will have an adequate roof, walls, and floor to contain any release of PCBs.

C14.3.4 Any PCB item removed from service will be marked with the date it is removed from service. The Italian Base Commander must be notified within 30 days from the removal date (see Chapter 1 for the procedure). The notification should include information on the method of disposal. The Italian Base Commander may submit the notification to the Competent Region or Province.

## C14.4 STORAGE PRIOR TO DISPOSAL

C14.4.1 Storage prior to disposal of PCBs and PCB items at concentrations of 25 ppm or greater must be authorized. Installations that conduct such storage will provide the Italian Base Commander with sufficient information to seek authorization of their PCB storage (see Chapter 1 for the process). The Italian Base Commander may submit the information to the Competent Region. The items will be stored in a facility that will assure the containment of PCBs, including:

- Roofs and walls of storage buildings that exclude rainfall
- A containment berm, at least 6 inches high, sufficient to contain twice the internal volume of the largest PCB article or 25 percent of the total internal volume of all PCB articles or containers stored, whichever is greater
- Drains, valves, floor drains, expansion joints, sewer lines, or other openings constructed to prevent any release from the bermed area
- Continuous, smooth, and impervious flooring material
- To the maximum extent possible, a new PCB storage area will be located to minimize the risk of release due to seismic activity, floods, or other natural events. For facilities located where they may face such risks, the installation spill prevention and control plan will address the risk.

C14.4.2 The following items may be stored temporarily in an area, subject to weekly inspection, that does not comply with the above requirements for up to 30 days from the date of removal from service:

- Non-leaking PCB items, marked to indicate whether it is a PCB article or PCB equipment
- Leaking PCB articles and PCB equipment placed in a non-leaking PCB container that contains sufficient absorbent material to absorb fluid contained on the PCB article or equipment
- PCB containers in which non-liquid PCBs have been placed
- PCB containers in which PCBs at a concentration between 50-499 ppm have been placed, and containers marked to indicate there is less than 500 ppm PCB

C14.4.3 Non-leaking and structurally-undamaged large high-voltage PCB capacitors and PCB-contaminated electric equipment that have not been drained of free-flowing dielectric fluid may be stored on pallets, or raised platforms, next to a storage area meeting C14.3.4 criteria if they are inspected weekly.

C14.4.4 All other PCB storage areas will be inspected at the frequency required in the storage authorization (monthly at a minimum).

C14.4.5 Containers used for the storage of PCBs will be at least as secure as those required for their transport for disposal by the servicing DRMO.

## C14.5 DISPOSAL

C14.5.1 Installations that generate PCB waste of 50 ppm or greater PCB will maintain an audit trail for the wastes at least as stringent as that required under the criteria in Chapter 6. Installations shall dispose of PCB items either:

- Through the servicing DRMO in accordance with DoD 4160.21-M, or
- In country in accordance with the following paragraphs and Chapter 6, after obtaining concurrence from the EEA via the Component chain of command.

C14.5.2 For in-country disposal, the following PCB items must be delivered to a company currently enrolled in the National Waste Managing Company Register for disposal via incineration (which must meet a 99.9998% combustion efficiency):

- PCB-contaminated dielectric fluid
- Rags, soils, and other PCB-contaminated debris
- PCB articles other than those described above, or described in C14.5.3

C14.5.3 For in-country disposal, the following PCB items must be delivered to a company currently enrolled in the National Waste Managing Company Register for decontamination or disposal via incineration (which must meet a 99.9998% combustion efficiency):

- PCB transformers
- PCB capacitors
- Hydraulic machines containing PCBs
- PCB-contaminated electrical equipment (except capacitors)
- PCB containers

C14.5.4 Where PCB fluids, items, or articles are disposed of in an incinerator in Italy, the incineration company must be currently enrolled in the National Waste Managing Company Register to incinerate PCB wastes.

C14.5.5 Retrogrades of PCB Items. DoD-generated PCB items manufactured in the U.S. will be returned to CONUS for delivery to a permitted disposal facility if Italian or third country disposal is not possible, is prohibited, or will not be managed in an environmentally sound manner. Ensure that all PCB items and equipment are marked in accordance with the criteria in C14.1.3.

## C14.6 ELIMINATION OF PCB PRODUCTS

C14.6.1 Installations shall minimize the use of PCBs and PCB items without degrading mission performance.

C14.6.2 Installations shall not purchase or otherwise take control of PCBs or PCB items for use.

C14.6.3 All procurement of transformers or any other equipment containing dielectric or hydraulic fluid shall be accompanied by a manufacturer's certification that the equipment contains no detectable PCBs (less than 2 ppm) at the time of shipment.

C14.6.4 Such newly procured transformers and equipment shall have permanent labels affixed stating they are PCB-free (no detectable PCBs).

## ADMINISTRATIVE ITEMS

1. Installations that have PCB items with PCB concentrations greater than 50 ppm by weight will provide a notification of the PCB items to the Italian Base Commander, who may submit the notification to the Competent Regional Authority. The notification should be updated annually and should include the following information:

- Name and address of DoD installation
- Item: number, type, labeling, date of construction and number of years in service, manufacturer performance, voltage, capacity, and containment system
- Location, including topographic map (scale 1:100)
- Fluid type, quantity, date of service, and available sampling and analysis data
- Monitoring systems
- Safety measures adopted for each item (e.g., fire-proof catch basins around transformers, sand or other absorbent material, containment walls, etc.)
- Emergency procedures for accidents
- Personnel security procedures
- Occurrences of breakdowns and control measures taken
- The predicted lifetime of the item
- Whether in-place chemical-physical regeneration has taken place
- Occurrences of refilling with alternative fluids
- Inspections conducted in the last 5 years
- Characteristics of the location of the item (e.g., hydrogeologic aspects, permeability, presence of aquifers, direction of groundwater flow, vicinity to surface water and wells, etc.)
- Distance to closest residence
- Use of neighboring properties

2. Installations that have PCB items containing PCB concentrations with a volume greater than 5 $dm^3$ (5 liters) will provide a declaration of the PCB items to the Italian Base Commander, who may transmit the declaration to the Regional Office of Waste Register. The notification must be submitted by 31 December 2000, and every 2 years thereafter or within 10 days from variations of the inventory.

- Name and address
- Location and description of the item
- Quantities and concentration of PCBs contained in the item
- Date of treatment or substitutions if implemented or estimated
- Quantity and concentration of PCBs retained
- Date of submission of the declaration required in item 1 (above)

3. Storage prior to disposal of PCBs and PCB items at concentrations of 25 ppm or greater must be authorized (see Chapter 6). Installations that conduct such storage will provide the Italian Base Commander with sufficient information to seek authorization of their PCB storage. The Italian Base Commander may submit the information to the competent Regional Authority.

4. Installations will notify (within 30 days) the Italian Base Commander whenever PCB items are removed from service. The notification should include information on the method of disposal. The Italian Base Commander may submit the notification to the Competent Regional Authority.

**Table 14.1**
**Labeling Requirements:**
**PCB Items & Items Containing PCB Fluids**

All PCB items (including capacitors) containing more than 5 cubic decimeters ($dm^3$) (5 liters) of PCBs by volume, as well as items containing fluids with a PCB concentration of 0.005% to 0.05% (50 to 500 ppm), must be prominently labeled in English and Italian. This marking criteria also applies to rooms, vaults, and storage areas containing PCB transformers or storing PCBs or PCB items for disposal. The doors to rooms where PCB items are located must also be labeled.

The label should be accompanied by operating instructions specific to that item. If the item contains fluids with PCB concentrations of 0.005% to 0.05% (50 to 500 ppm), the label should state: "PCB contamination lower than 0.05% (500 ppm)".

The label should be at least 23 cm high by 17 cm wide, and should be divided into two parts. The top section (at least 8 cm high) should contain the name of holder, hazard symbol, and risk (R-) and safety (S-) phrases (see Chapter 5). The symbol should be in black on an orange background. The lower section should contain the following information in black on a white background:

- Contains PCBs suspected to cause cumulative health effects in living organisms and to contaminate the environment.
- Avoid direct contact with liquids or vapors containing PCBs.
- Do not discharge waste containing PCBs in drains or gutters or on the ground.
- Use, control, or maintenance operations during normal and emergency periods, as well as disposal activities, must be conducted according to Comitato Elettrotecnico Italiano (CEI) norms. In particular, inspections and/or emergency interventions following fires must be conducted using a respirator equipped with cartridges to protect against hydrochloric acid and organic vapors. In addition, waste must be collected in airtight metal containers and stored until final disposal.
- In case of abnormal functioning, consult the manufacturer.
- In case of spills of liquid containing PCBs call: _____
- In case of fire, call the fire department and notify that the fire involves PCB-containing item.
- Opening of the item is prohibited except by authorized persons.

**Table 14.2**
**Labeling Requirements for Decontaminated Transformers**

All decontaminated transformers should have a label that contains the following information:

- Fluids containing PCB have been replaced with: _____
- On date: _____
- By (name of the authorized company): _____
- PCB concentration (% by weight) of the replaced fluid: _____
- New fluid PCB concentration (% by weight): _____